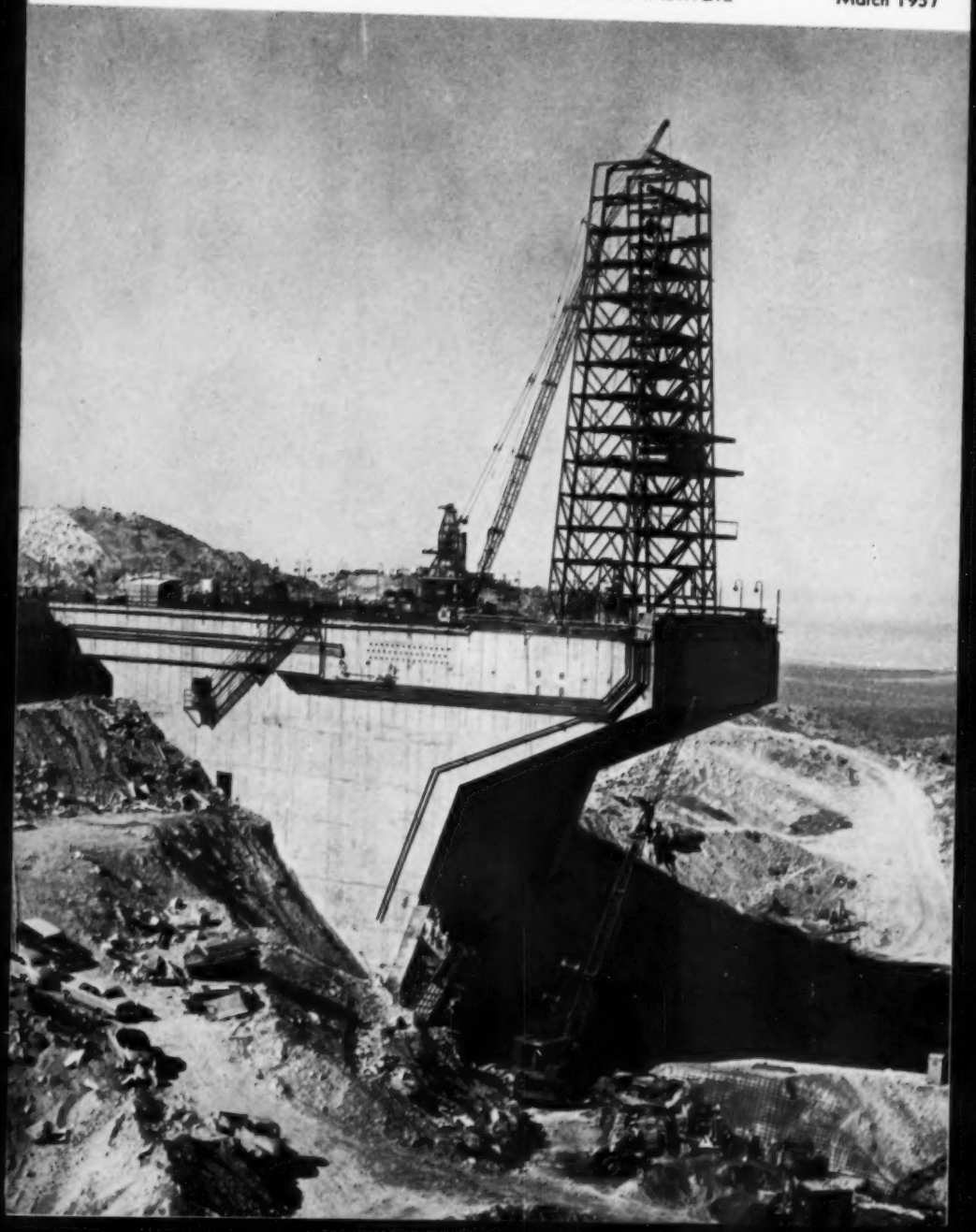
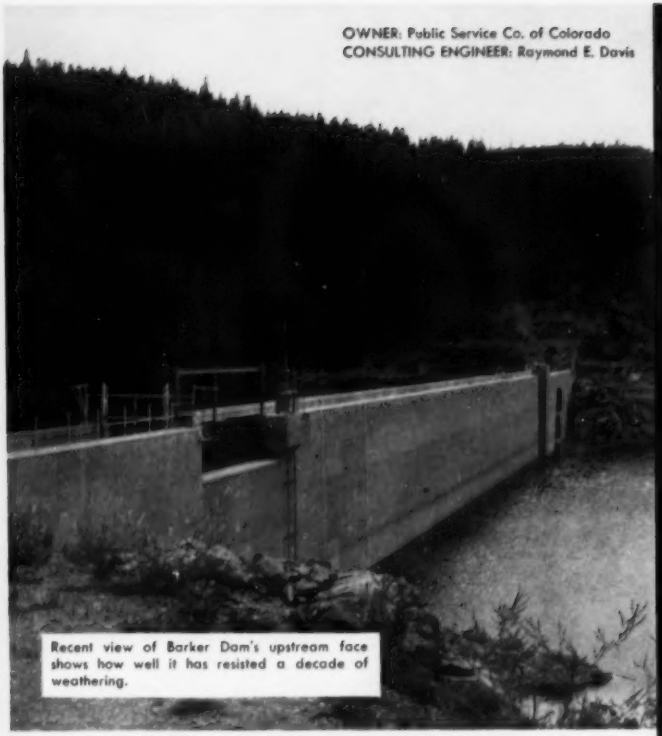
ACI News Letter

Vol. 28, No. 9 JOURNAL of the AMERICAN CONCRETE INSTITUTE March 1957



OWNER: Public Service Co. of Colorado
CONSULTING ENGINEER: Raymond E. Davis



Recent view of Barker Dam's upstream face shows how well it has resisted a decade of weathering.

Crane placed slabs during 1946 refacing operation. Dam is 175 feet high and 720 feet long at crest.

Coarse aggregate, placed between slabs and old face, was later consolidated with Intrusion grout.

TEN-YEAR PROGRESS REPORT ON BARKER DAM SHOWS THAT...

Prepakt restoration produces durable, long-lasting results

In 1946 Barker Dam near Boulder, Colorado, frost-damaged and leaking, was restored by INTRUSION-PREPAKT. A recent examination revealed that the dam is in excellent condition . . . and should remain so indefinitely.

This project indicates both the enduring nature of I-P maintenance work and its versatility. Repair work on Barker Dam was handled completely by INTRUSION-PREPAKT and required (1) grouting permeable foundation material, (2) removing the disintegrated upstream face, and (3) increasing the stability of the structure by an addition to the upstream face.

Refacing was started during seasonal low reservoir by removing deteriorated concrete, placing precast concrete slabs over entire face and filling the space between slabs and face with coarse aggregate. When reservoir had nearly filled, the entire structure was bonded together in a continuous 10-day INTRUSION grouting operation.

In addition to long-lasting repairs, use of I-P methods and materials reduced possibilities of cracking from stress and temperature changes, avoided loss of a season's run-off of water, permitted completion in minimum time and assured superior concrete quality.

For enduring maintenance of concrete and masonry structures, contact: INTRUSION-PREPAKT, Inc., Room 568E, Union Commerce Bldg., Cleveland 14, Ohio. In Canada: INTRUSION-PREPAKT, Ltd., 159 Bay St., Toronto, Ontario.

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Intrusion and Prepakt are trade marks of Intrusion-Prepakt, Inc., whose methods and materials are covered by U. S. Patents Nos. 2313110, 2650034, 2734302 and others, also patents pending.

ACI

News Letter Contents

March 1957

On the Cover—Rocket test stand nears completion at Edwards Air Force Base on the Mojave Desert. Massive concrete base, founded on solid rock, will withstand 1,000,000-lb thrust, holding rockets in position for static tests. Construction proceeds below the cantilevered portion on a flame deflector pit, also of concrete, which will be surfaced with a 4-in. layer of special refractory concrete. The construction story is on p. 6 of the News Letter. —*Photo courtesy United States Air Force*

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Annual report:

ACI MEMBERSHIP GAINS HIGHLIGHT 1956 GROWTH

MEMBERSHIP GAINS highlighted American Concrete Institute development in 1956. The year-end total of 8444 members represented a net gain of 1057, almost twice the number of new members who joined during 1955, and is a 14.3 percent increase in total membership.

Publication sales rose to $107,132.06 to top last year's record figure of $78,000. Major impetus was the 1956 ACI Building Code.

Members received July and August JOURNALS for the first time in 1956. The change in publication schedule to 12 issues permitted the printing of 20 percent more papers. Since 1946, 10 issues of the JOURNAL were published annually —from 1933 to 1946, it was six issues.

Membership dues remained the principal source of ACI income at $123,493.07.

Status of funds of the Institute at the end of 1956 is shown in the following statements:

GENERAL FUND ASSETS, LIABILITIES, AND RESERVE

December 31, 1956

ASSETS

Cash on hand		
National Bank of Detroit	$ 35,044.52	
Detroit Bank and Trust Co.	1,149.34	
Petty cash	45.38	
		$ 36,239.24
Accounts Receivable		
Advertising		1,984.89
Publications		14,718.62
Building endowment fund		7,782.69
Investment in U. S. Government Bonds at cost value		126,000.00
American Telephone and Telegraph Company Stock		340.60
Lease deposit		3,300.00
Gold Seal certificates, Michigan Bank		10,000.00
Real estate		28,475.50
Furniture and fixtures capitalized	$ 18,013.98	
Less reserve for depreciation	−8,354.24	9,659.74
TOTAL ASSETS		$238,501.28

Continued on p. 4

Continued from p. 3

LIABILITIES		
Accounts payable		
Trade accounts	$ 19,765.02	
Accrued payroll taxes	244.61	
Henry C. Turner Trust Fund	404.08	
Alfred E. Lindau Award Fund	438.22	
Retirement Fund	4,715.65	
Withholding tax	1,486.62	
		$ 27,054.20
Reserve for Detailing Manual		4,259.99
Reserve for Directory		3,000.00
Refunds due to customers		772.52
		$ 35,086.71
RESERVE		
Reserve, December 31, 1955	$183,879.44	
Adjustments of prior years' retained earnings	8,655.19	
	$192,534.63	
Excess receipts over expenditures, 1956	10,879.94	
		$203,414.57
TOTAL LIABILITIES AND RESERVE		$238,501.28

SUMMARY OF RESERVES IN ALL FUNDS

December 31, 1956

ACI General Fund	$203,414.57
ACI Retirement Fund	48,215.65
Reserve for Detailing Manual	4,259.99
Henry G. Turner Trust Fund	2,904.08
Alfred E. Lindau Trust Fund	4,438.22
TOTAL OF ALL FUNDS	$263,232.41

Significant actions by the Board of Direction included approval of the preliminary design for the new ACI headquarters building and procedures for raising the $275,000 needed to finance its construction.

A change in policy, initiated by the Technical Activities Committee, placed publishing of discussion on a semi-annual basis, beginning with the June 1957 issue; and on a quarterly basis in 1958.

Two Institute standards were approved by the membership by secret letter ballot, effective May 1, 1956, as amended at the 52nd annual convention in Philadelphia. These were "Building Code Requirements for Reinforced Concrete ACI (318-56)," prepared by Committee 318, to supersede ACI 318-51; and "Recommended Practice for Winter Concreting (ACI 604-56)," report of Committee 604, to replace ACI 604-48.

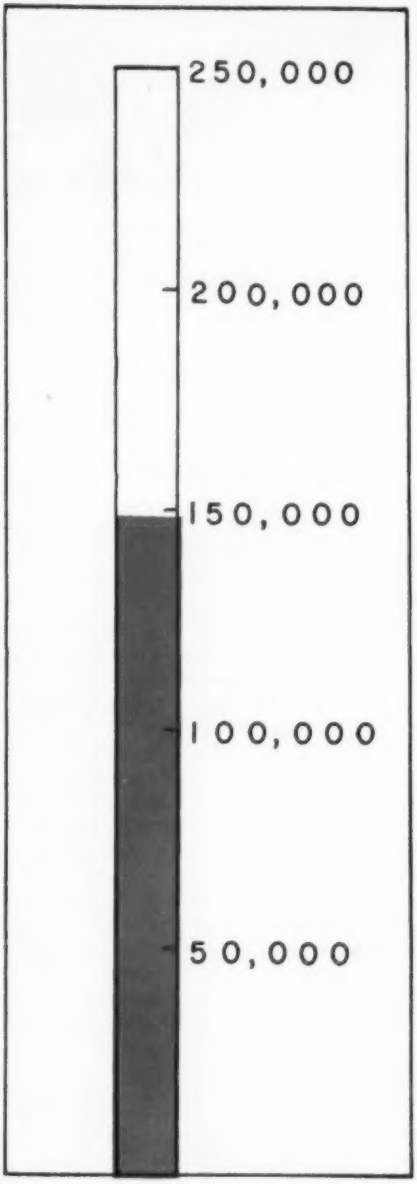
Both standards were published in the JOURNAL, along with reports "Ultimate Strength Design," by ACI-ASCE Committee 327; "Structural Design Considerations for Pavement Joints," by ACI Committee 325, Subcommittee III; "Design Considerations for Concrete Pavement Reinforcement for Crack Control," by ACI Committee 325, Subcommittee IV; "Considerations in Selection of Slab Dimensions," by ACI Committee 325, Subcommittee II; "Proposed Recommended Practice for Evaluation of Compression Test Results of Field Concrete," by ACI Committee 214.

A separately bound publication was *ACI Standards—1956*, containing all of the latest revisions of Institute standards; also issued in separate form were large-size reproductions of the design charts which appeared in Charles S. Whitney and Edward Cohen's "Guide for Ultimate Strength Design of Concrete."

A 72-page supplement to the *20-Year Index* was published by the Institute in May, including complete index and synopsis of all ACI papers published from 1950-1954.

ACI Fund Drive

• approaches goal



Contributions to the ACI Building Fund continue to swell the total recorded by the "Building Barometer." Checks and pledges in hand totaled $149,710.72 as of February 15, 1957. A resume of fund contributions is given below.

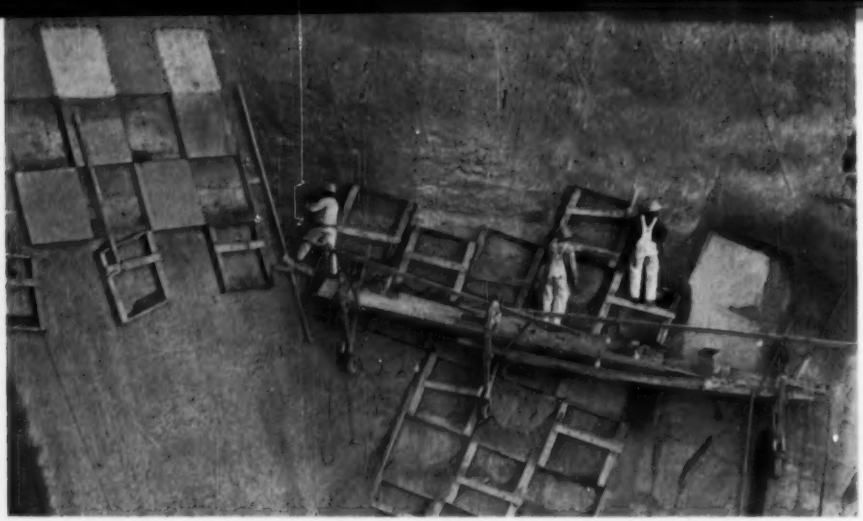
Contributions by Category
as of February 15, 1957

Reinforcing steel industry	$ 40,000.00
Engineers and architects in private practice	33,030.04
Cement producers	31,775.00
Contractors	11,200.00
Ready-mixed concrete and aggregate industry	8,006.75
Admixtures manufacturers	6,158.93
Concrete products manufacturers	2,075.00
Special contributions	1,000.00
Concrete machinery and specialty products	985.00
Membership at large	400.00
Eastern Canada	330.00
Total	$134,960.72
Pledges in hand	14,750.00
GRAND TOTAL	$149,710.72

Reviewer Needed

Giornale del Genio Civile

This Italian magazine is being received at ACI headquarters. A volunteer reviewer is needed to keep members informed of pertinent articles in this magazine through the "Current Reviews" section of the JOURNAL. Those interested should write the secretary of the Technical Activities Committee at ACI headquarters.



Workmen scale the sides of massive flame-deflector pit to finish the surface of special layer of refractory concrete which replaces conventional steel deflector surface often used for heat resistance. U. S. Air Force is completing giant test stand in California

On the Mojave Desert

giant rocket test stand

In California's Mojave Desert the U. S. Air Force is completing a giant concrete test stand which will provide for testing rocket engines and missile components having up to 1,000,000 lb thrust. Anchored some 60 ft into solid rock, with an over-all length of 200 ft, the stand is designed like a reinforced concrete bridge structure. (See picture on News Letter cover.) It includes a 54-ft concrete cantilever, 15 ft thick at the outer end and 40 ft thick at the haunch. This cantilever is approximately 150 ft above a flame deflector pit which will lead the gases from the test vehicles away from the stand.

Static rocket engine tests and missile research have been carried on since 1952 at the sprawling 300,000-acre Edwards Air Force Base on the western edge of the Mojave Desert. However, stands previously constructed there have been able to withstand only 500,000-lb thrusts.

The stark, isolated eastern section of Edwards was chosen as the site for rocket test activities because sufficient rock foundation is available for heavy concrete structures. Also the steep cliffs permit the great distance required between test stand and the flame deflector pit.

Design

Major problem in structural design of the new test stand was devising a means to carry the loading to bedrock. The facility must be able to support extremely high dead loads, at the same time providing uplift resistance to the 1,000,000-lb thrust developed when missile components are fired while secured to the test stand. Tremendous upward surges of power generated at the time of the firings will put the bottom edge of the cantilever arm in tension.

At an intermediate level below the deck, and within the shell of the stand, special servicing and utility areas are provided. These include a machine shop, terminal room for data recording instruments, electrical and mechanical equipment rooms, and office space.

Footings

The cantilever is only a portion of the huge concrete structure provided to counterbalance the two opposing load forces. The stand is

based on two massive concrete footings which fit deep into the rock. One is located across the transverse axis of the stand at the rear of the structure. The other was dug deeper into the rock and rests 146 ft below the deck of the stand. This footing is 30 ft wide, 120 ft long, and 20 ft deep. Both footings are solid mass concrete with no reinforcing except on the faces.

Falsework construction

A major construction problem was providing support for casting of the concrete cantilever, for the deck of the big arm juts out 15 stories above the sloping canyon hillside below. Several support methods were studied, and a heavy timber tower, able to resist earthquake stresses should a temblor occur during the concreting, was selected. This timber tower was made up of over 240,000 fbm of lumber, 120,000 fbm of which was 12 x 12-in. heavy timbers extending over 100 ft from their base. The tower cost nearly $100,000 excluding labor, but much of this is being recovered in salvage value.

Concreting operations

Because it is entirely constructed of mass concrete, resonant vibration will not be as troublesome in the new stand as in other installations.

Test borings taken of the area revealed excellent granite at desired footing depths. However, rock above this was faulty and was replaced with lean concrete. All aggregate for construction in the western part of the Mojave Desert has to be transported great distances, for locally available rock is of poor quality.

Over 26,000 cu yd of concrete are being used in the test structure. At the bottom of the stand, walls are as much as 8 to 10 ft thick. Although a small portion of this concrete was handled by crane and bucket for the beams and walls, most of the mass concrete was pumped into place.

To complete all concreting in 6 months, the contractor set up a two-shift operation. All formwork was placed by the day shift for it was found that forms are placed quicker and better during daylight hours. At night the concrete was placed in the forms.

The body of the test stand went up in 12-ft lifts. The arm sections were placed in five increments. The first lift was 15 ft, followed by three lifts of 7 ft each, and a final lift of 4 ft. This last lift contains the deck reinforcing.

More than 30 tons of reinforcing steel is being used in the concrete. Steel work is unusual in that many of the rods being handled in one piece measure up to 150 ft in length.

Flame deflection pit

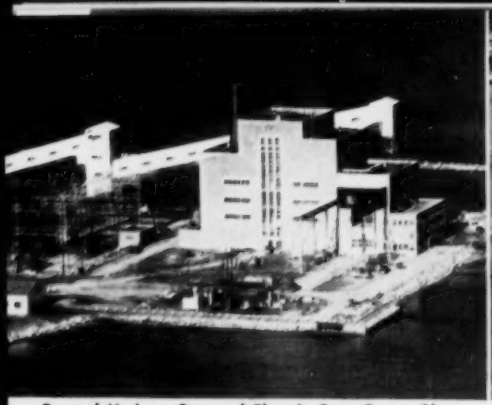
The deck of the cantilever has a 32 ft square opening through which exhaust gases and flames can be carried to the deflector pit. While test preparations are underway the opening in the arm will be closed by a steel cover plate.

With the casting of the cantilever complete and the falsework tower removed, excavation work started for the flame deflection pit which is a 60 ft deep pit lying 150 ft below the deck of the stand.

Before a test setup, rocket fuels are cooled to as low as —300 F which is necessary to keep the volatile propellant mixtures from reacting chemically with each other and exploding. However, tremendous heat is generated by the rocket fuels when they are fired. The deflector pit is designed to withstand temperatures up to 2000 F. The bottom slab and walls of the pit are of 18-in. concrete, with the top 4 in. of this made of a special refractory shotcrete. A steel deflector

Continued on p. 9

Construction view of reinforced concrete instrumentation and control building, which will house instruments used during rocket testing. Face of the building directed toward test stand is covered by several feet of earth to reduce intensity of shock waves on structure



Central Hudson Gas and Electric Corp. Power Plant, Newburgh, N. Y. Engr.—Burns and Roe, Inc., New York, N. Y.; Contrs.—Drill-In Caisson Corp., New York, N. Y. and G. E. Campbell, Poughkeepsie, N. Y.

Kansas City Water Softening Plant, Kansas City, Mo. Engrs.—Burns & McDonnell Engr. Co. and Black & Veatch Engr. Co.; Contr.—S. Patti Constr. Co.—all of Kansas City, Mo.

City Park Garage, Pershing Square, Los Angeles, Calif.; Archt.—Stiles Clements, Associated Architects & Engineers; Consltg. Engr.—Murray Erick Associates; Contrs.—Ford J. Twaits Co.; Morrison-Knudsen Co., Inc.; and T-S Construction Engineers, Inc.

Fanshawe Dam, Flood control unit located 15 miles northeast of London, Ontario. Consulting Engineers—H. G. Acres & Company, Niagara Falls; General Contractors—Foundation-Mannix Ltd., Toronto.

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giant rocket test stand . . .

Continued from p. 7

surface, adequately water cooled to withstand the jet impingement, has been eliminated from this stand by the use of this heat-resistant concrete. This improvement is significant since water is at a premium in the Mojave Desert.

Additional facilities

The instrumentation and control building, built almost entirely underground, is connected to the test stand by a 300-ft tunnel. This building will house instruments to be used during testing. The face of the building directed toward the test stand is covered by several feet of earth to reduce the intensity of the resulting shock waves on the structure. Main floor of the building provides space for technical personnel in addition to an attached observation area for test personnel during firing operations. The lower level provides space for instrumentation and recording facilities, test areas, repair shops, and storage areas.

Three separate reinforced concrete structures are provided as camera and observation posts. These air-conditioned posts are furnished with an air supply to operate 30 min at maximum occupancy with all inlets and exhaust ducts closed. Storage facilities for propellant fuels and high pressure gas are under construction.

Construction credit

Criteria for the facility were developed by U. S. Air Force engineers. Lt. Col. Henry W. Yagel, installations engineer for Edwards Air Force Base supervised the project for the air force. Administrator for the project is Col. Edwin M. Eads, Air Force Installations Representative, South Pacific Region.

Architectural services were provided by the Ralph M. Parsons Co., Los Angeles; contractor is the George A. Fuller Co., also of Los Angeles. Bruce Bennett is resident engineer for the rocket base. John J. Gould and H. J. Degenkolb, San Francisco, designed the special falsework tower, which was erected by Timber Structures, Inc.

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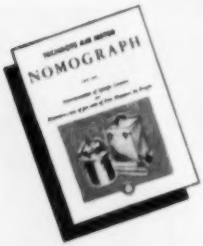

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CITY.....**ZONE**....**STATE**.....

Looking Ahead to Forthcoming ACI Meetings

With the 1957 ACI annual convention in Dallas concluded, members are now planning for forthcoming Institute meetings.

Next on the agenda is the fall regional meeting to be held at the Benjamin Franklin Hotel in Seattle the last week of October. The local committee is being directed by Robert Lochow, district engineer, Portland Cement Association.

The 1958 annual convention is slated for February 16-20 at the Morrison Hotel, Chicago.

The 1959 annual convention will be in Los Angeles at the Statler Hilton Hotel, February 23-26.

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National Award

Given Institute's Building Design

DESIGN OF ACI's proposed new headquarters building brought a national award to the firm of Yamasaki, Leinweber, and Associates, Royal Oak, Mich. The award, given by *Progressive Architecture*, was announced January 19 at the convention of the American Institute of Architects held in New Orleans.

The award in the commercial building class was described and the proposed building illustrated in the January issue of the magazine. Award information given was as follows:

"Office building for the American Concrete Institute, Detroit, Michigan: Yamasaki, Leinweber and Associates, architects; Ammann and Whitney, structural engineers; Cass S. Wadowski, mechanical engineer; Henry J. Guthard, electrical engineer.

"'The request of the client to build this small office building with imaginatively used concrete was a fascinating challenge,' write the architects. 'In order to achieve a design most appropriate to concrete it was felt that the building must express the plasticity of the material. Furthermore, since concrete is inherently more natural to slab-type construction than to post-and-beam, the use of concrete posts was avoided to dramatize this point.'

"The folded slab will be cantilevered from the bearing concrete walls which are further stabilized by the basement box. The roof slab will be pierced by skylights over the corridor. End walls will be grills of concrete pipe; spandrels of precast panels; garden wall of precast concrete blocks."

Preceding the announcement of award recipients, *Progressive Architecture* editors described the work of judges in evaluating approximately 800 entries in the fourth annual design awards program. Jury members were Marcel Breuer, Gordon Bunshaft, Emil H. Praeger, Huson Jackson, and Harry Weese.

Positions and Projects

ACI members participate in conference

Preston D. Linford headed the general committee for the 18th annual Highway Conference sponsored by the University of Utah's civil engineering department March 4-6 in Salt Lake City. The on-campus conference was opened by a talk given by Ezra C. Knowlton, executive vice-president, Utah Sand and Gravel Products Corp., Salt Lake City, on "Augmented Federal Highway Program and Utah's Related Problems."

Leo M. Arms, manager, highways and municipal bureau, Portland Cement Association, Chicago, also participated in the meeting. He presented a talk on "Solid Pavement Economics for the Interstate System."

ACI co-sponsors Duluth area meeting

The local area meeting at Duluth February 5, co-sponsored by ACI and the Portland Cement Association, in cooperation with the University of Minnesota, Duluth branch, was attended by 220 engineers, architects, contractors, concrete and concrete materials suppliers, faculty and students.

At this third annual concrete conference, Paul F. Rice, ACI Technical Director, discussed "New Developments in Precasting, Prestressing, and Tilt-Up Construction," under the 1956 ACI Building Code. Other ACI members participating in the program were N. T. Rykken, Virginia Ready Mix Co., Virginia, Minn., who talked on "Uniformity of Specifications—Factors Affecting Workability," and John H. Banker, PCA, Chicago, whose topic was "Handling, Placing, Finishing, Curing, Winter Construction and Economics in Field Operations."

Eberle M. Smith expands firm

Eberle M. Smith recently expanded the firm of Eberle M. Smith, Inc., Associates, Architects and Engineers, Detroit, to include Lyndon Welch and Mark Jaroszewicz, with Donald C. Templin as chief superintendent.

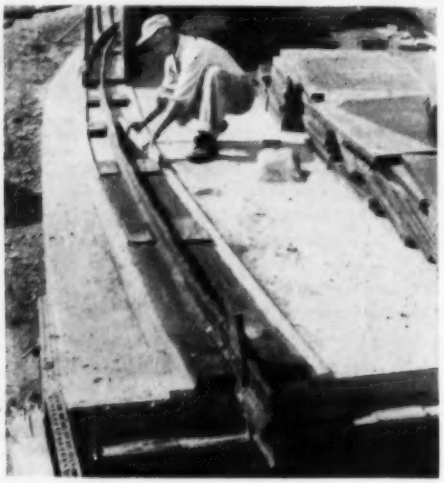
New offices at Allentown housed in all-concrete structure

New offices for Allentown Portland Cement Co. are housed in a striking all-concrete structure at the intersection of two main highways in Allentown, Pa. Located on the crest of a hill, the L-shaped design has two wings, each approximately 125 x 42 ft. With upper and lower floor levels, the sloping terrain provides all offices with full height windows.

The building has monolithic concrete basement walls with precast concrete joists sup-

ALLENTOWN PORTLAND'S new home. View above shows one wing on sloping terrain which allows full windows for both upper and lower level offices. To the left is 16-ft high lobby decorated with mural portraying role of portland cement

How to Choose Waterstop for optimum performance in Water and Sewage Treatment Plant Joints



Ultimate Elongation, Retention in Concrete Most Important Factors

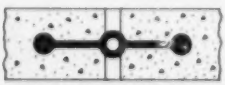
The principal function of waterstop is to keep concrete joints watertight where hydrostatic water pressure is present, and where movement of the concrete tends to open the joint.

To be effective, and to perform its function, the waterstop must:

1. **Be made of a material which has high tensile strength and permit maximum elongation without losing its elasticity. This is referred to as "ultimate elongation."**
2. **Be made of a material which permits a good concrete bond.**
3. **Be designed in such a way that concrete can make full contact with, and assure good retention of the waterstop during movement of the concrete.**

Many materials and designs in waterstop have been developed. Today, the most widely used materials are rubber, neoprene and polyvinylchloride. Designs vary with individual manufacturers and each design has its adherents. There seems to be, however, general agreement by many governmental and private specifying authorities, after years of testing and actual installation, that the rubber material and the dumbbell design (below) offer more advantages because of its inherent tensile strength, ultimate elongation, ability to bond with concrete, superior retention in the structure during contraction, and because of its comparatively low cost.

6" DUMBBELL TYPE EMBEDDED IN CONCRETE WITH A CONSTRUCTION JOINT



9" HOLLOW BULB TYPE EMBEDDED IN CONCRETE WITH AN EXPANSION JOINT

Retention of the waterstop in the joint during contraction or settling of the structure is another important consideration in choosing a type for your specific application. It is here that the dumbbell design is demonstrably superior to any other which has been developed to date. The design of the dumbbell is such that, when the concrete contracts and the joint opens up, the outer dumbbell edges become more tightly engaged with the concrete, making a tighter seal as the tension increases due to movement either in the joint or increasing water pressure on one side of the joint.

Field Splicing of Dumbbell Type

Servicised Products Corporation has developed a new Union which provides a simple method of joining the ends of dumbbell waterstops, making it just as fast and easy to field splice rubber and neoprene waterstop as the joining of the polyvinylchloride types.

The Union is made in the same cross-section, and from the same material as the waterstop. It is hollow, except for a solid web at the center. After adhesive is applied to the waterstop ends, they are inserted in the Union and pushed against the centering web. This completes the splice.

Dumbbell type rubber and neoprene waterstop and the new Union are fully described in a special Waterstop Circular available from Servicised Products Corporation upon request.

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porting a cast-in-place floor slab. The roof is made of precast concrete planks. Main elevations of the building fronting the Lehigh Valley Thruway and North Seventh Street are constructed of precast columns, girders, and sunshades. Thus, concrete framing normally concealed by outside walls is exposed to full view, and shows to advantage in shadow patterns created by the night-time floodlighting.

Architecture was by Lovelace and Spillman, Bethlehem, Pa. A. Newton Bugbee, Inc., Catasaqua, Pa., was the general contractor.

Praeger elected to AICE board

Emil H. Praeger, Praeger and Kavanagh, New York, was elected a member of the governing council of the American Institute of Consulting Engineers. An ACI member since 1927, Mr. Praeger is chairman of ACI Committee 216, Fireproofing or Fire Protection of Structures, and a member of ACI-ASCE Committee 323, Prestressed Reinforced Concrete.

Roy R. Clark retires from federal service

Roy R. Clark, 1957 recipient of the ACI Construction Practice Award for his paper, "Bonneville Dam Stilling Basin Repaired After 17 Years' Service," retired in December after 23 years of federal service. He was honored at a retirement luncheon attended by more than 100 Corps of Engineers personnel in Portland, Ore.

Rogers recipient of citation

Paul Rogers, consulting engineer, Chicago, has been named recipient of a design award citation in association with Hausner and Macsai, Architects, also of Chicago.

The citation, presented by *Progressive Architecture* at the New Orleans convention of the American Institute of Architects in January, represented recognition for the design of the Columbia and Pratt Apartments, Chicago, a 31-story building considered outstanding both architecturally and structurally.

A member of ACI Committee 318, Mr. Rogers was the 1953 recipient of the J. James R. Croes Medal of the American Society of Civil Engineers.

Fourth annual conference slated

Fourth annual conference for engineers and architects, sponsored by the College of Engineering at Ohio State University, Columbus, is scheduled for May 3 on the Ohio State campus, Gordon B. Carson, engineering dean, has announced. The conference is expected to attract about 1000 engineers and architects from all over the country.

Dr. Philip Sporn, president of American Gas and Electric Service Corp., will be the keynote speaker. Another major address will be given by Dr. Emanuel R. Piore, director of research for International Business Machines Corp.

McDonell heads Florida section, ASCE

Hubert F. McDonell, assistant engineer of materials and tests, State Road Department, Gainesville, Fla., was recently elected president of the Florida section, American Society of Civil Engineers.

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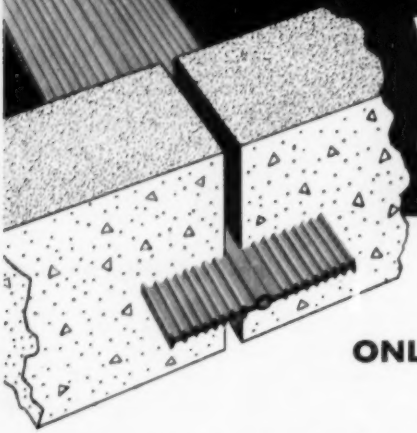

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Concrete contractors form association

Officers will be elected by the entire membership of the newly formed National Concrete Contractors Association at a meeting in Chicago on June 18. Present plans call for selecting a nominating committee which will choose a slate of officers by the middle of May. More than 1500 members in 23 cities throughout the United States now make up the association. The organization, which will headquarter in Chicago, was recently established in Mexico City during the annual convention of the Concrete Contractors Association of Greater Chicago on January 14. Bert Carey was chosen temporary chairman. ACI member Ernest F. Carlson, Springfield, Mass., is on a promotion committee for local associations.

Pizzetti appointed at MIT

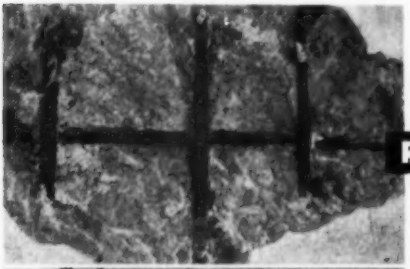
Dr. Giulio Pizzetti has been appointed a visiting professor in the department of civil engineering at Massachusetts Institute of Technology. Specializing in concrete structures, he will work with the departments of architecture and civil engineering. He received his PhD in civil engineering at the Polytechnic Institute of Turin, Italy. Former director of a firm of building contractors in Buenos Aires, Dr. Pizzetti has also served as professor at the School of Architecture, University of Buenos Aires.

Michael A. Spronk promoted

Promotion of Michael A. Spronck, formerly executive field editor, to editor of *Construction Equipment*, has been announced. He is also editor of *The Transit*, publication of the Supreme Council of Chi Epsilon, national civil engineering fraternity.

ACI aids Quality Concrete conference

The American Concrete Institute was a co-sponsor of the Quality Concrete Conference conducted by the School of Engineering, Vanderbilt University, Nashville, February 19-20.



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Who's Who This Month

ACI Committee 616

"Guide for Painting Concrete" that appears on p. 817 was prepared for this month's JOURNAL by ACI Committee 616.

Chairman of the committee is G. E. Burnett, Bureau of Reclamation, Denver. Serving with him are T. E. Chisholm, Hydro-Electric Power Commission of Ontario, Toronto; W. H. Kuenning, Portland Cement Association, Chicago; B. A. Malm, Sears Roebuck and Company, Chicago; J. C. Moore, National Paint, Varnish and Lacquer Association, Washington, D. C.; J. L. Rohwedder, U. S. Army Corps of Engineers, Rock Island, Ill.; Francis Scofield, National Paint, Varnish and Lacquer Association, Washington, D. C., and D. O. Woolf, Bureau of Public Roads, Washington, D. C.

The late F. O. Anderegg also assisted with this report as a member of Committee 616.

JoDean Morrow and I. M. Viest

Co-authors of "Shear Strength of Reinforced Concrete Members Without Web Reinforcement," p. 833, are JoDean Morrow and I. M. Viest.

Mr. Morrow, research associate in theoretical and applied mechanics, University of Illinois, received his BS degree in civil engineering from Rose Polytechnic Institute in 1950. After 1 year with the Indiana Highway Commission and a 2-year tour of duty in the Army Corps of Engineers, he entered graduate school at the University of Illinois, receiving his MS in 1954. His master's thesis pertained to part of the work presented in this paper. He is presently working on his PhD in the field of fatigue of metals.

Mr. Viest, research associate professor of theoretical and applied mechanics at the University of Illinois, has prepared four other papers for the JOURNAL since he became a member of ACI in 1948.

He was graduated as a civil engineer in 1946 from the Technical University, Bratislava, Czechoslovakia, where he also worked as a special assistant in structural engineering for 1 year. Later he received the MS degree from Georgia Institute of Technology and a PhD degree from the University of Illinois.

Since 1948 his work has been devoted to several research projects pertaining to steel and reinforced concrete structures. In addition, he has been active as consultant on various problems of industrial development and research. Presently he is a member of ACI-ASCE Committee 326, Shear and Diagonal Tension, and chairman of ACI-ASCE Committee 333, Composite Construction.

Herman G. Protze

"Structural Refractory Concrete for Use in Jet Engine Test Cell Exhaust Stacks," p. 871, is the work of Herman G. Protze, materials technologist, Boston.

Mr. Protze became a member of ACI in 1934. He received his bachelor's and master's degrees in architectural engineering from Massachusetts Institute of Technology in 1932 and 1933, respectively.

A prolific author, Mr. Protze has prepared many engineering articles for publication and presented numerous papers before special audiences of his field. He was an instructor in testing of materials at MIT and supervised its concrete laboratory from 1934 to 1936. He taught structural materials at Lowell Technological Institute from 1934 to 1937 and also mechanical drawing and structural analysis at Lowell Institute and at

Reviewer Needed

Il Cemento

This Italian magazine is being received at ACI headquarters. A volunteer reviewer is needed to keep members informed of pertinent articles in this magazine through the "Current Reviews" section of the JOURNAL. Those interested should write the secretary of the Technical Activities Committee at ACI headquarters.

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Massachusetts University extension school during this same period.

Prior to forming his own business in 1948, Mr. Protze was assistant vice-president of Thompson and Lichtner Co., Boston. In his own firm, he now specializes in theoretical and applied concrete technology, serving from time to time as a court witness on construction materials.

Mr. Protze is a registered professional engineer in Massachusetts. He is a member of the Construction Specifications Institute and of the board of direction of its Boston chapter, in addition to being chairman of the committee on concrete, Boston chapter. He is affiliated with many professional groups, including Boston Society of Civil Engineers, Engineering Societies of New England, Inc., and American Society for Testing Materials.

Norman B. Green

Author of "Design of Floating Slab Foundation," published on p. 889, is Norman B. Green, consulting structural engineer, Los Angeles.

Following several years employment as structural designer in engineering offices in San Francisco he practiced there as a consulting structural engineer from 1928 through 1941. In 1942 he entered the Civil Engineer Corps, U. S. Navy, in which he served first as lieutenant commander and then as commander until the end of World War II.

Mr. Green received a BA degree in civil engineering from Stanford University in 1921 and his MS degree from the University of Illinois in 1923. From 1921 to 1923 he was a graduate research assistant at the Engineering Experiment Station, University of Illinois, where he worked on concrete research. He is a member of the Structural Engineers Association of Southern California and is chairman of the research committee of that organization. He is also a member of ACI and of Sigma Xi.

Grant Bloodgood and Lewis H. Tuthill

Co-authors of "Responsibilities of An Inspector" on p. 899 are Grant Bloodgood, associate chief engineer, Bureau of Reclamation, Denver, and Lewis H. Tuthill, concrete engineer, Division of Design and Construction, California State Department of Water Resources, Sacramento.

Mr. Bloodgood, an ACI member since 1948, received his engineering degree from the University of Nebraska in 1920. He worked for the Bureau of Reclamation from 1920 to 1925 on the location and construction of irrigation distribution systems.

When employed by the J. G. White Engineering Corp. on the construction of the Calles Dam project in Mexico from 1926 to 1929, he was in charge of the location and construction of the irrigation distribution system.

He has been employed continuously by the Bureau of Reclamation since that time, except for 3½ years during World War II when he served as commanding officer of an engineering regiment. His services include key assignments on the construction of the Hoover Dam, All-American Canal, and Shasta Dam. Since 1946 he has been assigned to the chief engineer's office in Denver in the following capacities: assistant chief construction engineer, chief construction engineer, and presently associate chief engineer.

Well-known to the JOURNAL audience is Mr. Tuthill, a 1957 co-recipient of the Wason Medal for "the most meritorious paper" of the year. This paper, "Properties and Uses of Initially Retarded Concrete," appeared in the November, 1955, JOURNAL.

For 17 years Mr. Tuthill had been associated with the Bureau of Reclamation in Denver before taking his present California position.

He is a member of the Institute's Board of Direction, the Technical Activities Committee, and heads Committee 611, Inspection of Concrete, and Committee 614, Recommended Practice in Measuring, Mixing, and Placing Concrete. He is also a member of the following technical committees: 213, Properties of Lightweight Aggregates and Lightweight Aggregate Concrete; 605, Hot Weather Concreting; 609, Compaction of Concrete by Mechanical Means; and 621, Aggregates. He also was Chairman of Committee 604, Winter Concreting Methods.

A busy author, he has prepared or collaborated on at least 14 papers for the JOURNAL. In 1945 his paper, "Concrete Operations in the Concrete Ship Program," earned him the ACI Construction Practice Award.

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Honor Roll

February 1, 1956—January 31, 1957

Juan A. Sarmiento is still in first place at the close of the Honor Roll year with 42 credits. Jose L. Capacete, who held first place for most of the year, is second with 35 credits. Jaime de las Casas is third with 15 credits and Phil M. Ferguson is in fourth place with 13.

These men are commended for the interest they have shown in promoting ACI membership.

We hope we may add your name to the Honor Roll during the next Honor Roll year.

Juan A. Sarmiento	42
Jose L. Capacete	35
Jaime de las Casas	15
Phil M. Ferguson	13
James A. McCarthy	12
S. E. Acker	11
Newlin D. Morgan, Jr.	11
G. B. Southworth	11
Federico Barona de la O	10
Walter E. Fisher	9
W. H. Armstrong	8
Kenneth Gedney	8
H. C. Pfannkuche	8
Martin J. Gutzwiller	7
Carl H. Koontz	7
M. A. Craven	6
Jacob J. Creskoff	6
J. W. Kelly	6
L. M. Legatski	6
Ignacio Martin B.	6
J. Antonio Pardo	6
George F. Bishop, Jr.	5
George M. Brief	5
Arthur N. L. Chiu	5
Samuel Hobbs	5
George Papoulas	5
Walter H. Price	5
Harry C. Saxe	5
Howard Simpson	5
George L. Blanchard	4
W. S. Cottingham	4
Louis A. Gottheil	4
Charles W. Payne	4
Max Sittenfeld	4
Delbert Smith	4
Joaquin Spinel L.	4
Ellis S. Vieser	4
Joseph J. Waddell	4
Koker Al-Asady	3
G. W. Bernard	3
R. F. Blanks	3
W. S. Burke	3
S. L. Burns	3
Daniel M. Cashdan	3
Howard F. Christensen	3
Roger D. de Cossio	3
Charles A. Engman, Jr.	3
Gordon P. Fisher	3
Myle J. Holley, Jr.	3
E. L. Howard, Jr.	3
J. E. Jellick	3
Henry L. Kennedy	3
Clyde E. Kesler	3
Masatane Kokubu	3
Stanley Kresky	3
George T. Mahoney	3
Gene M. Nordby	3
Constantin Polidoroff	3
Melchor Rodriguez C.	3
C. H. Scholer	3
Martin Schulz	3
K. E. Whitman	3
Mihran S. Agababian	2
W. T. Bates	2
A. H. Brownfield	2
Carlos D. Bullock	2
Humbert Causing	2
T. J. Cavanagh	2
Miles N. Clair	2
Roger H. Corbetta	2
Anthony J. Costanza	2
Claudio Creamer G.	2
Clayton M. Crosier	2
James N. De Serio	2
Julius Dorfman	2
Robert M. Doull	2
William M. Dreisig	2
Daniel Ellenberg	2
William J. Eney	2
Arthur Feldman	2
Bengt F. Friberg	2
Donald R. Frost	2
F. S. Fulton	2
J. Guillermo Galvan	2
Gerald K. Gillan	2
Vance J. Gray	2
William R. Gray	2
Seymour W. Greenburg	2
John S. Hattrup	2
Frank T. Higgins, Jr.	2
Alexander Homishak	2

Continued on p. 26

LOOKING AHEAD

March 14-16, 1957—Third Military-Industrial Conference, Conrad Hilton Hotel, Chicago, Ill.

May 20-21, 1957—37th Annual Meeting, Society of American Military Engineers, Washington, D. C.

June 16-21, 1957—60th Annual Meeting, American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City, N. J.

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M. W. Huggins	2
Daniel P. Jenny	2
Robert Kadala	2
Dov Kaminetzky	2
Thomas C. Kavanagh	2
B. T. Kerr	2
Narbey Khachaturian	2
Fazlur R. Khan	2
John C. King	2
M. H. Kubba	2
Federico Leon	2
Arthur A. Levison	2
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R. H. Mahimtura	2
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L. J. Meszaros	2
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Robert B. B. Moorman	2
Chia Muktabhant	2
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Kiyoshi Okada	2
Adrian Pauw	2
D. A. Polychrone	2
M. V. Pregnoff	2
Abdur-Rahman S. Rasul	2
Thomas J. Reading	2
Leo E. Rivkind	2
Salvador Rodriguez	2
Morris Schupack	2
C. W. N. Sexton	2
Theodore Sheafer	2
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Murray Slater	2
G. W. Slee	2
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Byron P. Weintz	2
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Eric S. Yueh	2
Milton Zanger	2
Charles C. Zollman	2
Richard J. Frazier	1½
Robert F. Adams	1
R. G. Ahrens	1
Odd Albert	1
Theodore Albrecht	1
Michael Alexander	1
John Alle	1
D. Campbell Allen	1
Harold Allen	1
Robert P. Allen	1

Continued on p. 27

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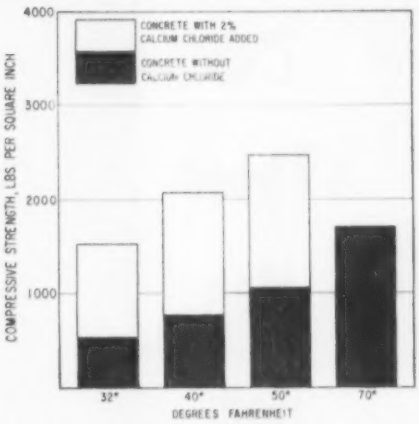

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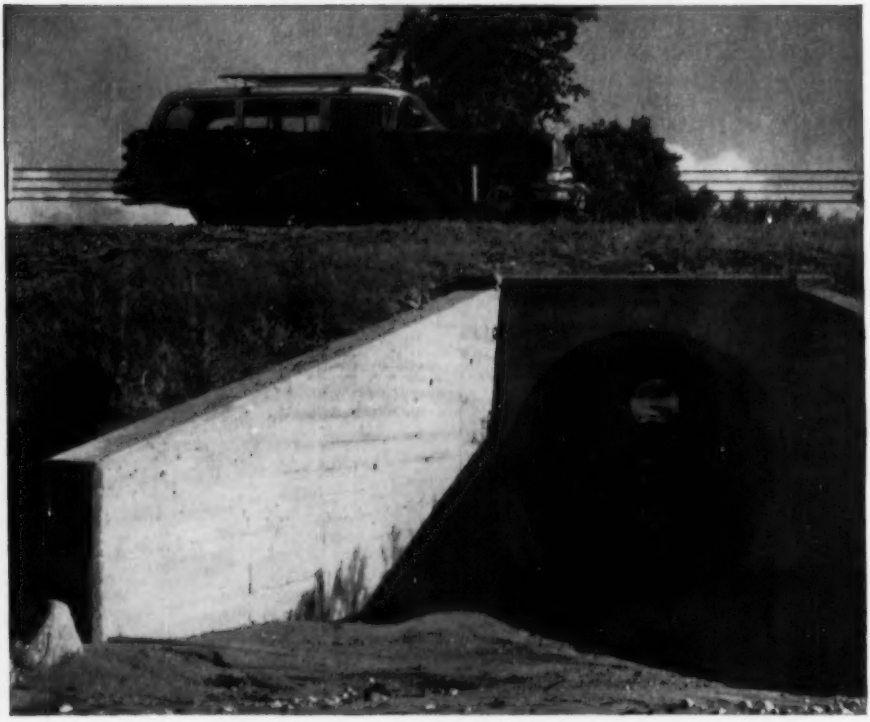

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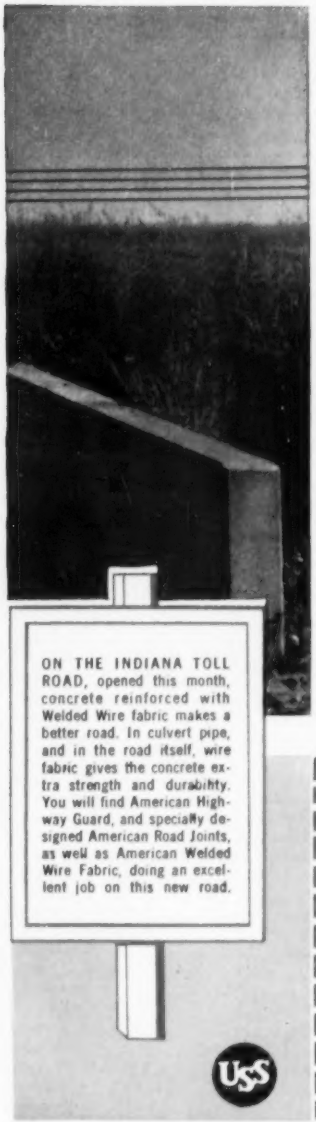
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Errata

The following corrections should be made in "Shearing Strength of Reinforced Concrete Slabs," by Richard C. Elstner and Eivind Hognestad, in the July 1956 JOURNAL.

p. 56—Eq. (i) should read:

$$P_{flex} = 4m\,\frac{a-r}{2}\sqrt{2}\,\frac{\sqrt{2}}{a-r} + 4mr\,\frac{\frac{1}{2}}{\frac{a-r}{2}} = 4m\left\{1 + \frac{1}{\frac{a}{r} - 1}\right\}$$

The two sentences under Eq. (i) should read:

"The equation giving the smallest P_{flex} will govern. Thus Eq. (h) applies when $r \geqq a/2$, and Eq. (i) applies when $r \leqq a/2$."

EDITOR'S NOTE—Eq. (h) and (i) were not used at any time in the analysis of the test results. Therefore, the error in Eq. (i) has no bearing on the conclusions of the investigation.

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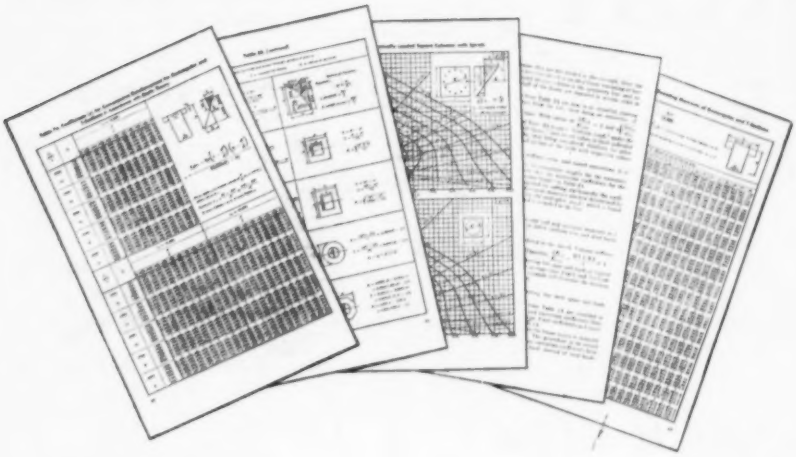

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